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ABSTRACT

School-related time allocations of students, including time at home, as reported in sample surveys of students, teachers, and parents, are examined for systematic relations to socioeconomic indicators, controlling for ability. Special attention is paid to teacher-influenced student time allocations such as instructional time and homework. The aim is to discover whether school-influenced student time allocations vary systematically by socioeconomic status, and whether any such variation tends to reinforce or reduce the resource equalizing effects of school funds allocations. The theoretical and research background for this study derives from human capital, school finance, and pedagogical literature. (Author/MLF)

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THE RESOURCE EQUALIZING EFFECTS OF SCHOOL AND STUDENT TIME ALLOCATIONS

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THE RESOURCE EQUALIZING EFFECTS OF SCHOOL AND STUDENT TIME ALLOCATIONS

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The dollar resources of school finance are used to purchase some of the physical and human resources which enter the educational process. The number of such dollars per student and the ease with which they are provided varies from school to school and from place to place. The study of the causes of such revenue differences and what should be done about them is an important and vigorous area of education and public policy research (Thomas and Wimpelberg, 1977).

A major reason for interest in these revenue differences is a persistent belief that resources make a difference in the educational development of children. The simple version of this belief suffered a major setback with the publication of the Coleman Report. It is well recognized today that the transformation of resources into educational services and outcomes is a complex process in which the student's own human resources (talents, abilities, prior learnings) and predispositions (habits, preferences) must be taken into account, along with the human and physical resources provided in school, and the possible effects of peer groupings, school and family structure, and family behavior (Murnane, 1975).

The bulk of public elementary and secondary schooling dollars purchase the time of teachers and other personnel. Smaller, but still significant portions of the school budget are spent to purchase the services over time of curriculum materials and equipment. The amount of the school budget in dollars, divided by the number of pupils in the school, gives the "average

expenditure per pupil," a figure which is convenient for some comparisons between schools or districts. But it will, of course, be a rare student who is actually exposed to the average value of resources. Some of the reasons for this are obvious: one child's teacher may be paid more than another's, because of salary policies which recognize training and experience; or, one high school student may elect a course which requires costly equipment, such as chemistry or shop, while another takes a course with little equipment, such as math or French. There are also less obvious reasons why a child may not be exposed to the average value of resources. For example, materials and equipment may be underutilized: books may sit unopened on a shelf; projectors may stand idle part of the day.

Another consideration in examining the transformation of dollars into services and outcomes is that resources which have the same dollar cost may not behave the same in the schooling process. Since children (and adults) have different abilities, habits of mind, and preferences, what works well with one or some may not work well with others. Thus, resources which have the same dollar value may not have the same value in producing education: the same book may be too difficult for one child and too easy for another; a teacher may know how to motivate Susan, but be puzzled by Juan. In such cases, the exposure to <u>useful</u> resources may vary considerably, and the research problem becomes one of identifying the proper combinations of student characteristics and teaching behaviors and materials. Moreover, teachers of the same grade or subject may give different emphases to the parts of the curriculum: it may not be uncommon for one elementary teacher to spend twice as much time on mathematics as another teacher of the same grade, even in the same school (Garner, 1977).

Finally, it must be noted that the school's budget dollars are not used to purchase the one indispensable learning resource, the time of the students.[1] It is the student who is the producer of learning, not the teacher or school; the student combines his or her own history and current resources with those provided by the teacher, school, and home. The process depends not only on the available resources, but on the time allocation decisions of students. Securing the student's compliance with how the educator thinks time should be allocated is the object of strategies to "motivate" or "prolong the attention span" of the student.

Like purchased resources, however, the productivity of each student's time will not be uniform across students for a given subject, or, likely, across subjects for a given student. Across students, we can expect student learning productivity to be modified by such considerations as socio-economic status, parent behavior, and variation in ability. Across subjects, the productivity of each student's time will presumably depend on the student's motivation and particular abilities.

Although the student is the producer of learning, the student's opportunity to learn is subject to school and public policy influence by regulations regarding compulsary attendance, length of day and term, and promotion and graduation requirements. In school, the allocation of a student's time is, in its gross outlines at least, very much under the control of school persons, by virtue of assignment to classes, the division of the day into "periods," and teacher decisions about class activities.

Furthermore, the school typically allocates, or attempts to allocate, some of the student's non-school time by means of homework assignments.

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[1]These resources may be "purchased" in other ways: by legal sanction, threat, praise, grades, etc.

These incursions into the after school time of students are widely sanctioned in our society. Indeed, a desire by a sizable fraction of parents for increased homework assignments for their children is a regular finding of the annual Phi Delta Kappan/Gallup Poll on education.[2] For those students who receive, and do, regular homework assignments, the extra time so spent can amount to a significant addition to the school day, and thus to the total amount of school-related learning activities over the year. For example, just 1/2 hour of homework adds 10% to a 300-minute school day, and 67% to a 45-minute class. Despite the relative importance homework might have in a child's total exposure to schooling activities, research on teacher and student homework behavior is only a tiny fraction of the education literature, and little is known about which students get (or do) what kinds of homework, under what conditions (Garner, 1977).

The foregoing considerations are mentioned more by way of a reminder or sketch than as a full exposition of the case that study of the allocation and effectiveness of resources in schooling requires identification and analysis of the availability and use of resources over time. To some extent, studies of the equity and efficiency of mechanisms for obtaining public revenue for schooling can (and do) proceed independently of study of the transformation of such revenue into the actual productive resources of schooling. But insofar as the object of equity in school finance is equity in provision of schooling opportunity (as opposed to taxpayer equity, or some other goal), the connections between school revenue, actual productive resources, and school results must be established. To establish such

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[2]See, for example, the October 1976 of Phi Delta Kappan, pp. 187-200.

connections, all the productive resources of schooling must be examined, including non-purchased resources such as student time.

A number of recent essays and studies have, in varying degrees, emphasized the importance of a time metric in examining school resource allocations and schooling activities (Garner, 1973; Murnane, 1975; Thomas, 1971, Carroll, 1963; Bloom, 1974; Hanushek, 1978; Keisling, 1977; Block and Burns, 1976; Harnischfeger and Wiley, 1976). Some of these provide frameworks or models which are useful in identifying aspects of schooling in which the time metric is most likely to be useful (e.g., Carroll, Harnischfeger and Wiley). A theoretical framework for predicting the time allocation behavior of individuals is available in the economic literature (Becker, 1965). The implications of that economic theory of time allocations have not to my knowledge been adduced for the particular situation of teacher and student behavior in the institutional setting of the school.[3] The more difficult task of relating such individual decisions to societal objectives in the context of public school finance lies even farther ahead.

Both positive and normative models of learning behavior make the plausible assumption that, other things equal, more time spent results in more learning. The technical problem is to identify the "other things" which must be taken into account in order for the assumed relation between time and learning to be manifested, and to identify the relative impact of variations in those conditions. The identification of such technical relations is very important for our understanding of learning and for the analysis of the resource and institutional implications of public policies aimed at

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[3]But see McKenzie and Tullock, 1975, Part 6, and Thomas, 1971. The theory of the allocation has received extensive application in the study of family behavior. See Moock, 1974.

compensatory education, minimal competencies, or equal opportunity. Information about what technically can be accomplished in educational settings must be compared to information about actual school practice, in order to identify discrepancies, potential directions for change, and the resource requirements of such change. I have written elsewhere on the identification of technical production possibilities in education (Garner, 1973). This paper deals with actual time and resource allocation practices of 90 elementary school teachers in one district.

The purpose of this paper is to contribute to the identification of issues and the development of empirical data on the relation of student and teacher time allocations to the dollar resources of school funding. It is assumed that questions about equity of educational opportunity must be answered at least in part by examination of who gets how much of what. This paper is a preliminary report on work in progress, the larger share of which, consisting of survey research on time allocations in New York City and additional suburban locations, is not complete. Also, some of the work on the sample to be discussed in this paper is being reported elsewhere at this conference (Moock, 1978). This paper will attend primarily to teacher reports of time allocations in the four elementary schools of one suburban New York school district, in relation to factors purchased by dollar resources, such as class size and teacher experience.

Sample and Data

The site for this study was a school district in Westchester County, New York. Westchester is a generally affluent county, with a number of well-known public school systems. The total number of districts in the county

is 45. Out of that number, Chesterville District (a pseudonym) ranked 33 in per pupil expenditure in 1974-75, the year prior to the commencement of this study, spending $2,595 per pupil. The total district budget was $17.6 million, 80 percent of which was allocated to salaries and benefits. The district ranked 28 in equalized local tax rate. Median family income is above $30,000. The district is 95% white. It is approximately one-third Roman Catholic, one-third Jewish, and one-third Protestant.

Chesterville district has four elementary schools (K-6) with a 1975-76 total enrollment of 2,892. Kindergarten, first grade, and special education services were excluded from this study. For grades 2 through 6, the following data collection procedures were employed:

Teachers. A teacher survey was distributed to all grade 2 through 6 teachers (N = 90), with the approval and assistance of the district superintendent and the teacher organization president. The survey requested description of classroom organization (e.g., self-contained, team-teaching, and other, not mutually exclusive, terms); the daily teaching schedule, including time devoted to mathematics and reading/language arts (LA); the regularity with which homework was assigned; the teacher's estimate of the time a typical student was expected to spend on homework in math, LA, and all homework; the amount of paraprofessional or student teacher help during the year; and some details of teacher family background. (A copy of this questionnaire is available upon request.) The researchers, including this author, visited every school, and spoke to many teachers in both teacher-meeting and individual settings. Teachers who had left the system after the target data year (1975-76) were contacted and surveyed where possible. Overall, cooperation was very good: of ninety possible respondents, usable questionnaires were

returned by 74 teachers (82%). To these responses were added, from office records, teacher experience, salary, and undergraduate institution data. Thus, some information is available on every teacher. Because not all teachers who returned the survey answered every item, and because some responses foiled our best coding ingenuity, the number of usable teacher responses varies from 72 to 90, depending on the question asked.

Students. Metropolitan Achievement Test scores in mathematics computation and reading comprehension were obtained from office records for most (N = 2106) students in grades 2 through 6. These end-of-year scores for 1976, expressed as grade equivalents, were converted to a standard score scale. End-of-year 1975 scores were also obtained for some of the same students, but are not used in the results reported below. The mean achievement score on these tests is above grade level, and some grade 5 and grade 6 students in our sample do "top out" on these tests. The problems associated with such topping out, which might affect a production-function study, are not considered germane to the present analysis. Student scores were aggregated to class mean and standard deviation, for purposes of the class-level analysis which follows.

Parents. A parent survey conducted in 1975-76 elicited information on parent (mother's) knowledge of district school practices and alternatives, parent education, income, family size, and parent/child time allocations, including early childhood and current time, to such matters as reading together, talking, watching TV, and homework. Parent reported time allocations by children included in the classrooms we studied are available for 887 children. These data, however, have only just become available for inclusion with our classroom and individual student data, and were not ready

in time for the analysis which is reported below. For other analyses based on these parent data, see Bridge, et al. (1976) and Levine and Moock (1978).

A more detailed description of this sample and the data collection procedures is available as a separate document upon request.

Results

We look first for any significant differences among the four schools for the mean values of teacher salary, class size, and selected achievement and time allocation variables.

Mean teacher salaries (in 100's) for the four schools are shown in Table 1. The average salary of teachers in our sample is $18,694. The analysis of variance due to school has a non-significant F of 0.0657. In other words the average teacher salary is not markedly different from school to school, as can be seen by visual inspection of the means themselves, the difference between the lowest and highest mean being less than 3%. (Teacher experience is also not significantly associated with school; tables not included.)

Mean class sizes over all grades are shown in Table 2. Here a statistically significant difference is found ($F = 6.4036$; 3,86), due mainly to the smaller average class size in school #2 of our sample.[4]

School mean mathematical computation scores are given in Table 3. Again, some small variation between schools is found, but that is greatly

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[4]The average class size reported by the district for each school is 25.35, 22.7, 24.36, and 23.36, respectively. These means are very close to those in Table 2, differing by no more than 1/2 percentage point, except for School #2, which differs by 3.12 percentage points. Although School #2 has a smaller class size according to both figures, the difference from the other schools is much less according to district figures. Our data are being rechecked for coding errors.

exceeded by the variation within schools (F = 0.5385, d.f. 3,86; Sig. = 0.644). Although the difference is not significant, school #2 has slightly lower mean math scores than found in the other three schools.

Turning to curricular time allocations, as reported by teachers, the schools differ little in minutes of class time devoted to mathematics, as shown in Table 4. The F value for these differences among schools is a non-significant 0.2471. Language Arts class time shows somewhat more variation among the schools, but the difference is non-significant at F = 1.3798 (d.f. 3,73; Sig. = 0.2547).

Finally, homework assignments are not significantly different by school. Teachers were asked to indicate the average time (hours per week) they expected their students to spend on all homework. Table 5 shows the mean reported amounts by school (F = 1.095, d.f. 3,86; Sig. = 0.35612). Teacher expected time on specifically mathematics or language arts homework shows even less school to school variation, as shown in Tables 6 and 7.

This preliminary examination of teacher salary, class size, and time allocation variables shows no significant differences among the schools, with the possible exception of class size, where one school may have somewhat smaller classes. On the whole, if evenness is a criterion (as it might be according to some views of "equity"), a parent would have little reason to prefer one school over another in order to obtain larger average expenditure or math and LA curriculum exposure for a child.

But averages are derived from individual cases. What actual exposure and involvement with resources and curriculum topics is a child likely to have? Does such exposure vary much? Are any such variations systematic in their incidence, and attributable to deliberate policy? Are there

systematic variations which seem explicable, but not by appeal to educational policy? Or are such variations unaccountable by the data we have?

In Table 8, mathematics and language arts class and homework time allocations are shown by grade level across all four schools. From Table 8 it is immediately apparent that while the schools do not differ significantly in average time allocations, there is considerable variation among individual teachers at every grade level. For example, the ratio of maximum to minimum reported mathematics time in class ranges from 2.4 to 1 to 4.0 to 1. For language arts the span is 2.3 to 3.5 to 1. In other words, depending on class placement, one child in a given grade may receive from two to four times as much math or language arts class time as another. These seem to be rather marked variations, and will be inspected in more detail below, after other features of Table 8 are noted.

There is an unsteady but downward trend in class time for math and LA, presumably because other subjects compete for class time in the higher grades, or because math and LA can increasingly be taught jointly with other subjects in the higher grades (e.g., math taught with science, reading with social studies). Math class time decreases 21.3% from grades 2 through 6, LA time decreases 26%. Over the same period increasing reliance is placed on the role of student work out of class and out of school: math homework increases 223% on the average; LA homework increases 72%. In-class and homework time may be added together to obtain a figure for "total exposure" to curricular learning activities in math and LA. Total math time increases slightly from 339 to 348 minutes per week on average from grades 2 through 6, an increase of between 2 and 3 percent, or almost no change to speak of. Language Arts total in-class and homework time decreases by one-fifth, from

739 to 549 minutes per week. In both cases there is an average shift from in-class toward homework exposure to these curriculum topics. By sixth grade, homework has become 16% of the weekly LA exposure, and a sizeable 48% of math exposure. If these time allocation patterns make any difference, they presumably favor those students who can work independently and who have supportive home environments.

The increasing reliance on student learning during non-class time (a trend which continues through high school and college) opens interesting avenues of investigation. For example, one might suppose that higher ability students would be the more efficient learners, and thus would require less discretionary time to accomplish a given task. On the other hand, abler students may enjoy school work more than less able students, and therefore spend more time on given tasks or in exceeding the given task. The expected outcome, which depends on the utility function and opportunity costs of the students, is not obvious.

In the case of the less able student, the increased reliance on the student's own time in higher grades may mean that the less able pupil can substitute study time for ability in the accomplishment of learning tasks. Such a person, who does better than expected on the basis of ability, might be called an "overachiever." If mastery of early tasks made subsequent tasks "easier" (i.e., quicker) to attain, the student's opportunity set would be changed, and perhaps his utility function as well. Investigation of such changes, however, would require longitudinal rather than cross-sectional data.

The above discussion of Table 8 was based mainly on the grade by grade average times shown. Table 9 shows the correlations of class and homework

time, by grade. Of the 20 correlations, 19 are positive, and 7 of those are significant at less than the .05 level. In other words, there is a general, though uneven, tendency for time allocations in class and for homework in these subjects to vary together.

In Table 10, selected time and achievement variables are correlated with class size, by grade. Here we see that, beginning in grade 4, there is a general tendency for lower achieving students to be in smaller classes, and for smaller classes to receive more math and language arts class and homework time. These tendencies are especially pronounced at the sixth grade level, but never exceed a simple correlation of .60, and are for the most part rather small. The amount of variance overlap, or r^2, these variables account for does not exceed 0.36 and is generally much less. Based on preliminary runs with other teacher and classroom descriptors, we do not expect detailed investigations by multiple regression or analysis of covariance to explain the major portion of variation in class and homework time allocations. At this time the most that can be said is that there is some evidence of a tendency to "compensatory" time allocations in this school district. That is, to some extent the lower achieving student is more likely than a higher scoring student to get additional time devoted to math and language arts. It must be recognized, of course, that such "additional" time is thereby subtracted from time available for other curriculum areas.

The final table, Table 11, indicates the direction to be taken in further analyses of these data. Table 11 gives the results of a regression of teacher salary and amount of teacher aide time on total math and LA time in-class and for homework, controlling for grade level. The variables are in natural logs, so the B coefficients represent the elasticity of the dependent variable

with respect to the independent variables. The regression is significant overall, and the B value for teacher salary is significant also. What is interesting is that the sign of the coefficient is negative. That is, higher salaried teachers are associated with less total math and LA time. Interpreting the coefficient as an elasticity, a 1% increase in teacher salary is associated with a 0.39% decrease in time allocated to math and language arts.

As the previous tables indicated a tendency for lower achieving pupils to receive higher amounts of class and homework time, then it may be, to speculate, that higher paid (i.e., more experienced, more graduate credits) teachers are found more often in classes with higher mean achievement scores. A number of alternative explanations are possible, however. For example, it may be that higher salaried teachers are more efficient, by virtue of experience and training, in use of class time for instruction, and therefore use less class time (and student home time) to accomplish what takes other teachers longer. Use of class time for other than math and language arts is not accounted for in these data.

Summary

This paper has presented preliminary results of a study in progress which investigates the relation of purchased variables such as teacher time to curricular time allocations and student achievement indicators, in grades 2 through 6 of one school district. These results show wide variation in time allocations from class to class at each grade level. Some of these variations may be attributed to a mildly compensatory strategy in the district, though perhaps not with respect to the allocation of teacher time by salary

level. The major portion of such time allocation variation does not appear to be accountable by the variables examined thus far. Moreover, as pupils progress through the grades, increasingly larger portions of curriculum exposure are transferred to the non-school discretionary time of the student: that is, into the student's resource environment rather than the school's.

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Table 1: Mean Teacher Salary by School

	Mean	S.D.	N
School 1	187.33	30.76	21
School 2	186.40	41.48	15
School 3	184.88	28.41	25
School 4	189.03	35.92	24
Total	186.94	33.14	85
	ANOVA F = .0657	Sig. > .6	

Table 2: Mean Class Size by School

	Mean	S.D.	N
School 1	25.05	4.92	21
School 2	19.58	5.53	19
School 3	24.88	3.15	25
School 4	23.44	4.41	25
Total	23.4	4.89	90
	ANOVA F = 6.4036	Sig. = .00085	

Table 3: Mean Math Achievement Scores by School

	Mean	S.D.	N
School 1	80.22	16.16	21
School 2	78.46	14.86	19
School 3	84.36	19.47	25
School 4	82.90	15.91	25
Total	81.74	16.70	90
	ANOVA F = 0.5385	Sig. = 0.644	

Table 4: Math Class Time in Minutes by School

	Mean	S.D.	N
School 1	289.4	116.2	21
School 2	265.3	177.5	19
School 3	259.9	48.0	25
School 4	268.6	125.3	25
Total	270.3	119.9	90

ANOVA F = 0.2471 Sig. = 0.6134

Table 5: All Homework Time by School
(hours per week)

	Mean	S.D.	N
School 1	2.56	1.75	21
School 2	1.90	1.47	19
School 3	2.48	1.79	25
School 4	2.86	1.94	25
Total	2.48	1.77	90

ANOVA F = 1.0950 Sig. = 0.356

Table 6: Math Homework Minutes per Week by School

	Mean	S.D.	N
School 1	61.50	53.46	20
School 2	61.33	45.49	15
School 3	75.68	46.12	22
School 4	80.00	44.67	22
Total	75.63	47.23	79

ANOVA F = 0.6146 Sig. = 0.6047

Table 7: Language Arts Homework Minutes per Week by School

	Mean	S.D.	N
School 1	65.71	56.95	21
School 2	74.67	42.40	15
School 3	63.95	47.69	21
School 4	75.91	43.80	22
Total	69.78	47.78	79

ANOVA F = 0.3192 Sig. = 0.674

Table 8: Math and Language Arts Time Allocations by Grade Level

Grade (N)	Math Class Minutes per week			Math Homework Minutes per week			L.A. Class Minutes per week			L.A. Homework Minutes per week		
	Mean	S.D.	Ratio Max/Min	Mean	S.D.	Ratio Max/Min	Mean	S.D.	Ratio Max/Min	Mean	S.D.	Ratio Max/Min
Second (18)	304.2	131.4	4.0/1	35.27	37.79	(6)*	691.8	148.8	2.3/1	47.67	36.22	(3)
Third (16)	265.8	100.8	2.5/1	61.88	35.30	(1)	596.4	155.4	2.8/1	65.63	47.22	(1)
Fourth (15)	265.2	114.0	2.4/1	85.0	26.12	2.7/1	497.4	175.2	3.3/1	64.67	40.47	(2)
Fifth (15)	268.8	116.4	3.0/1	91.0	57.55	(1)	535.8	213.6	3.5/1	93.67	61.57	(1)
Sixth (15)	239.4	136.2	3.0/1	114.0	33.66	2.7/1	511.8	155.4	3.0/1	82.0	43.13	5.0/1

Total (N) = 79

*Ratio not calculable because (N) teachers reported "0" homework expectation.

Table 9: Correlations of Class and Homework Time by Grade Level

Grade	MCLSHR X MHOMTM	LCLSHR X LHOMTM	MCLSHR X LCLSHR	MHOMTM X LHOMTM
2	0.2413 (18) S=0.167	0.3881 (16) S=0.069	0.2018 (17) S=0.219	0.5176 (18) S=0.014
3	0.5945 (16) 0.008	0.3171 (15) 0.125	0.4754 (17) 0.027	0.7545 (15) 0.001
4	0.2578 (15) 0.177	0.4858 (14) 0.039	0.3975 (14) 0.080	0.2028 (15) 0.234
5	0.2811 (15) 0.155	-0.5883 (13) 0.017	0.3893 (14) 0.084	0.8577 (15) 0.001
6	0.3963 (15) 0.072	0.5070 (14) 0.032	0.3647 (15) 0.091	0.2451 (15) 0.189

Definitions: MCLSHR, math class hours per week; LCLSHR, language arts class hours per week; MHOMTM, math homework minutes per week; LHOMTM, language arts homework minutes per week.

Table 10: Correlations of Class Size with Selected Variables by Grade

Grade	RDCMN X CLSIZE	MTHCMN X CLSIZE	LCLSHR X CLSIZE	MCLSHR X CLSIZE	LHOMTM X CLSIZE	MHOMTM X CLSIZE
2	0.3612	0.1950	0.1084	-0.1196	0.0046	0.1084
	(19)	(19)	(18)	(19)	(18)	(18)
	0.064	0.212	0.334	0.313	0.493	0.334
3	-0.1237	0.1956	0.1518	-0.1617	-0.1293	-0.1166
	(18)	(18)	(17)	(18)	(16)	(16)
	0.312	0.218	0.28	0.261	0.317	0.334
4	0.1935	0.4391	-0.1689	-0.1350	-0.1371	0.2193
	(17)	(17)	(14)	(17)	(15)	(15)
	0.228	0.039	0.282	0.303	0.313	0.216
5	0.1778	0.4056	-0.2808	-0.4293	-0.1358	0.0198
	(18)	(18)	(14)	(18)	(15)	(15)
	0.240	0.047	0.165	0.038	0.315	0.472
6	0.5297	0.5597	-0.3378	-0.4315	-0.5970	-0.3321
	(18)	(18)	(15)	(18)	(15)	(15)
	0.012	0.008	0.109	0.037	0.009	0.113

Definitions: CLSIZE, class size; RDCMN, class mean MAT reading score; MTHCMN, class mean MAT mathematical computation score; LCLSHR, language arts class hours per week; MCLSHR, math class hours per week; LHOMTM, language arts homework minutes per week; MHOMTM, math homework minutes per week.

Table 11: Regression on Total Math and L.A. Exposure

Dep. Var.: TIMEX

Ind. Vars.:	B	STD. ERROR B	t	
G 3	-0.06405	0.08434	0.759	
G 4	-0.10235	0.08505	1.203	
G 5	0.00181	0.08871	0.000	
G 6	-0.02083	0.08842	0.237	
HELPEX	0.03106	0.01093	2.842	
MSALEX	-0.38469	0.14637	2.628	$p < .01$
CONST.	8.86114			

R SQUARE: 0.24 F (6,64) 3.357 $p < .01$

ADJ. R SQUARE: 0.18

DEFINITIONS: TIMEX, Log_e total class and homework time in math and language arts

G3 - G6, dummies for grade levels (grade 2 referent)

HELPEX, Log_e total paraprofessional and student teacher hours/week

MSALEX, Log_e teacher salary in 100's